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**Amendment to the Claims:**

1. (Currently Amended) A piston compressor comprising:  
a cylinder housing which forms a cylinder wall that defines a cylinder;  
a piston which oscillates in the cylinder and, in a filling position,  
compresses gas in a cylinder pressure space, the piston defining a piston wall which  
5 faces the cylinder wall;  
gas bearing nozzles arranged adjacent the piston for gas-supporting the  
piston, at least one of the gas bearing nozzles being arranged in the cylinder housing  
and facing the piston wall;  
a compressed-gas accumulator connected with the gas bearing nozzles;  
10 a compressed-gas supply line between the cylinder pressure space and the  
compressed-gas accumulator; and  
an inlet valve in the compressed-gas supply line, the inlet valve being  
open in the filling position of the piston the inlet valve being defined by a cylinder  
wall opening and a piston wall opening which, in the filling position of the piston, are  
15 located opposite each other and define an open valve, and, in a non-filling position,  
are closed by the piston wall and the cylinder wall, respectively, and define a closed  
valve.
2. (Previously Presented) The piston compressor according to claim 1,  
wherein at least one of the cylinder wall opening and the piston wall opening are  
configured as a circular groove.
3. (Previously Presented) The piston compressor according to claim 1,  
wherein the compressed-gas supply line is arranged in the cylinder housing between  
the cylinder pressure space and the inlet valve.
4. (Previously Presented) The piston compressor according to claim 1,  
wherein the compressed-gas supply line is arranged in the piston between a piston end  
and the piston wall.

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5. (Previously Presented) The piston compressor according to claim 8, wherein the compressed-gas accumulator and the gas bearing nozzles are arranged in the piston.

6. (Previously Presented) The piston compressor according to claim 4, wherein in the compressed-gas supply line a second inlet valve defined by a second cylinder wall opening and a second piston wall opening is arranged.

7. (Previously Presented) The piston compressor according to claim 1, wherein in the cylinder, an anti-twist device is provided which prevents the piston from twisting in the cylinder.

8. (Currently Amended) A piston compressor comprising:  
a cylinder housing which forms a cylinder wall that defines a cylinder;  
a piston which oscillates in the cylinder and, in a filling position, compresses gas in a cylinder pressure space, the piston defining a piston wall which  
5 faces the cylinder wall;  
gas bearing nozzles arranged adjacent the piston for gas-supporting the piston, each gas bearing nozzle being formed by ~~one of~~ a wire inserted in a nozzle bore[[,]] ~~and a gas permeable plug of sintered material.~~

9. (Previously Presented) The piston compressor according to claim 1, wherein each gas bearing nozzle is formed by a gas-permeable plug of sintered material.

10. (Previously Presented) The piston compressor according to claim 1, wherein at least one of the gas bearing nozzles is arranged in a respective transversal plane adjacent end portions of the piston.

11. (Previously Presented) The piston compressor according to claim 1, wherein at least one of the gas bearing nozzles is provided in the piston.

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12. (Previously Presented) The piston compressor according to claim 8, wherein the gas bearing nozzles are arranged in the cylinder housing.

13. (Previously Presented) A piston compressor comprising:
- a cylinder housing which forms a cylinder wall that defines a cylinder;
  - a piston which oscillates in the cylinder and, in a filling position, compresses gas in a cylinder pressure space, the piston defining a piston wall which
  - 5 faces the cylinder wall;
  - gas bearing nozzles arranged adjacent the piston for gas-supporting the piston;
  - a compressed-gas accumulator connected with the gas bearing nozzles;
  - a compressed-gas supply line between the cylinder pressure space and the
  - 10 compressed-gas accumulator;
  - an inlet valve in the compressed-gas supply line, the inlet valve being open in the filling position of the piston the inlet valve being defined by a cylinder wall opening and a piston wall opening which, in the filling position of the piston, are located opposite each other and define an open valve, and, in a non-filling position,
  - 15 are closed by the piston wall and the cylinder wall, respectively, and define a closed valve; and
  - a pneumatic piston end-position control device which comprises:
    - a control pressure accumulator in the piston, wherein
    - the control pressure accumulator is connected with a control
    - 20 pressure accumulator piston wall opening in the piston wall,
    - a constant-pressure gas source connected via a line
    - with a cylinder wall opening which defines together with the
    - control pressure accumulator piston wall opening a control
    - valve and, in the filling position of the piston, is located
    - 25 opposite the control pressure accumulator piston wall
    - opening, and
    - a line between the cylinder pressure space and a
    - cylinder wall opening which together with the control
    - pressure accumulator piston wall opening defines a

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30 discharge valve and, during a cycle in a non-filling position  
of the piston, is located opposite the control pressure  
accumulator opening.

14. (Previously Presented) A stirling cooler comprising:  
a cold finger, and  
a piston compressor according to claim 1, wherein:

5 the cold finger comprises a displacer piston in a cold finger  
cylinder housing,

the cold finger comprises a compressed-gas accumulator and  
gas bearing nozzles connected therewith for supporting the displacer  
piston,

10 the cold finger compressed-gas accumulator is connected via  
a cold finger gas supply line with the piston compressor compressed-  
gas accumulator, and

15 in the cold finger gas supply line, a valve is arranged which  
is defined by a piston wall opening and a wall opening of the piston  
compressor and is opened when the piston compressor piston is in the  
filling position.

15. (Previously Presented) The piston compressor according to claim 1,  
further including:

an associated supply line connected with the compressed gas accumulator  
and adapted for connection with an associated device.

16. (Previously Presented) A piston compressor including:

a cylinder housing which forms a cylinder wall that defines a cylinder;

5 a piston which oscillates in the cylinder and, in a filling position,  
compresses gas in a cylinder pressure space, the piston defining a piston wall which  
faces the cylinder wall;

gas bearing nozzles arranged adjacent the piston for gas-supporting the  
piston;

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- a compressed-gas accumulator connected with the gas bearing nozzles;  
a compressed-gas supply line between the cylinder pressure space and the  
10 compressed-gas accumulator;  
an inlet valve in the compressed-gas supply line, the inlet valve being  
open in the filling position of the piston the inlet valve being defined by a cylinder  
wall opening and a piston wall opening which, in the filling position of the piston, are  
located opposite each other and define an open valve state, and, in a non-filling  
15 position, are closed by the piston wall and the cylinder wall, respectively, and define a  
closed valve state  
an associated device supply line connected with the compressed gas accumulator;  
an associated device accumulator connected with the associated device  
supply line, and  
20 an associated device air bearing connected with the associated device  
accumulator.

17. (Previously Presented) The piston compressor according to  
claim 16, further including:

an associated device piston supported by the associated device air  
bearings.

18. (Previously Presented) The piston compressor according to  
claim 17 wherein the associated device is a cold finger.